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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/821,636	03/29/2001	Hiroyuki Ikeda	09792909-4795	5712

7590

10/24/2002

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EXAMINER

TRAN, THIEN F

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 10/24/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/821,636

Applicant(s)

IKEDA, HIROYUKI

Examiner

Thien F Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) 6-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election of claims 1-19 and embodiment 1 of Fig. 1 in Paper No. 5 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 6-19 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected species (claims 6-12 are drawn to embodiment 3 and claims 13-19 are drawn to embodiment 4), there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 5.

### ***Specification***

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The

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disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed, the invention is about a device not a method for driving.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (USPN 5,808,595).

Kubota et al. discloses the claimed thin film semiconductor device comprising thin film transistors integrated on a substrate 11, and a wiring connecting the thin film transistors, each of the thin film transistors comprising a channel 12a which inherently has a predetermined threshold voltage and on-off operates depending on a gate voltage applied through a wiring, a part of the thin film transistors comprising a semiconductor thin film 12 constituting the channel, a first gate electrode and a second gate electrode, which are disposed on a surface and the other surface of the semiconductor thin film sandwiching an insulating film, wherein the first gate electrode and the second gate electrode receive a first gate voltage and a second gate voltage, respectively, through wirings which are separately provided, wherein the first gate electrode inherently on-off

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controls the channel depending on the first gate voltage, and wherein the second gate electrode actively controls the threshold voltage depending on the second gate voltage to adjust the on-off operation of the thin film transistors.

Regarding claim 2, Kubota et al. further discloses the semiconductor thin film 12 constituting the channel 12a made of polycrystalline silicon (col. 12, lines 25-27) and has a thickness 100nm (col. 13, lines 20-21). Kubota et al. further discloses some of the thin film transistors being p-channel transistors. It is a known fact that for p-channel transistors, the channel 12a is doped of n-type impurity which is either phosphorus or arsenic. Therefore, the channel does not contain boron which is a p-type impurity that effectively affects the formation of a depletion layer.

Regarding claim 3, Kubota et al. further disclose n-channel transistors being turned into those of depletion type wherein the film thickness of the semiconductor thin film 12 is set to not more than two times the maximum thickness of the depletion layer (col. 13, lines 14-18). It is a known fact that for n-channel transistors, the channel 12a is doped of p-type impurity which is boron. Therefore, it is inherent that the semiconductor thin film 12 of the n-channel transistors contains an impurity effectively affecting the formation of a depletion layer.

Regarding claim 4, Kubota et al. has the same structure as claimed, it is inherent that the device of Kubota et al. provides the functions as claimed so that the second gate electrode actively controls the threshold voltage depending on the second voltage applied at least when the thin film transistors off-operate, to thereby decrease a current

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flowing through the channel when the thin film transistors off-operate, as compared to a current flowing through the channel when the second gate voltage is not applied.

Regarding claim 5, Kubota et al. has the same structure as claimed, it is inherent that the device of Kubota et al. provides the functions as claimed so that the second gate electrode actively controls the threshold voltage depending on the second voltage applied at least when the thin film transistors on-operate, to thereby increase a current flowing through the channel when the thin film transistors on-operate, as compared to a current flowing through the channel when the second gate voltage is not applied.

Also, it has been held that claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. In re Danley, 120 USPQ 528, 531 (CCPA 1959). "Apparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thien F Tran whose telephone number is (703) 308-4108. The examiner can normally be reached on 8:00AM - 4:30PM Monday through Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (703) 308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

tt  
October 18, 2002



Thien Tran  
Patent Examiner  
Technology Center 2800